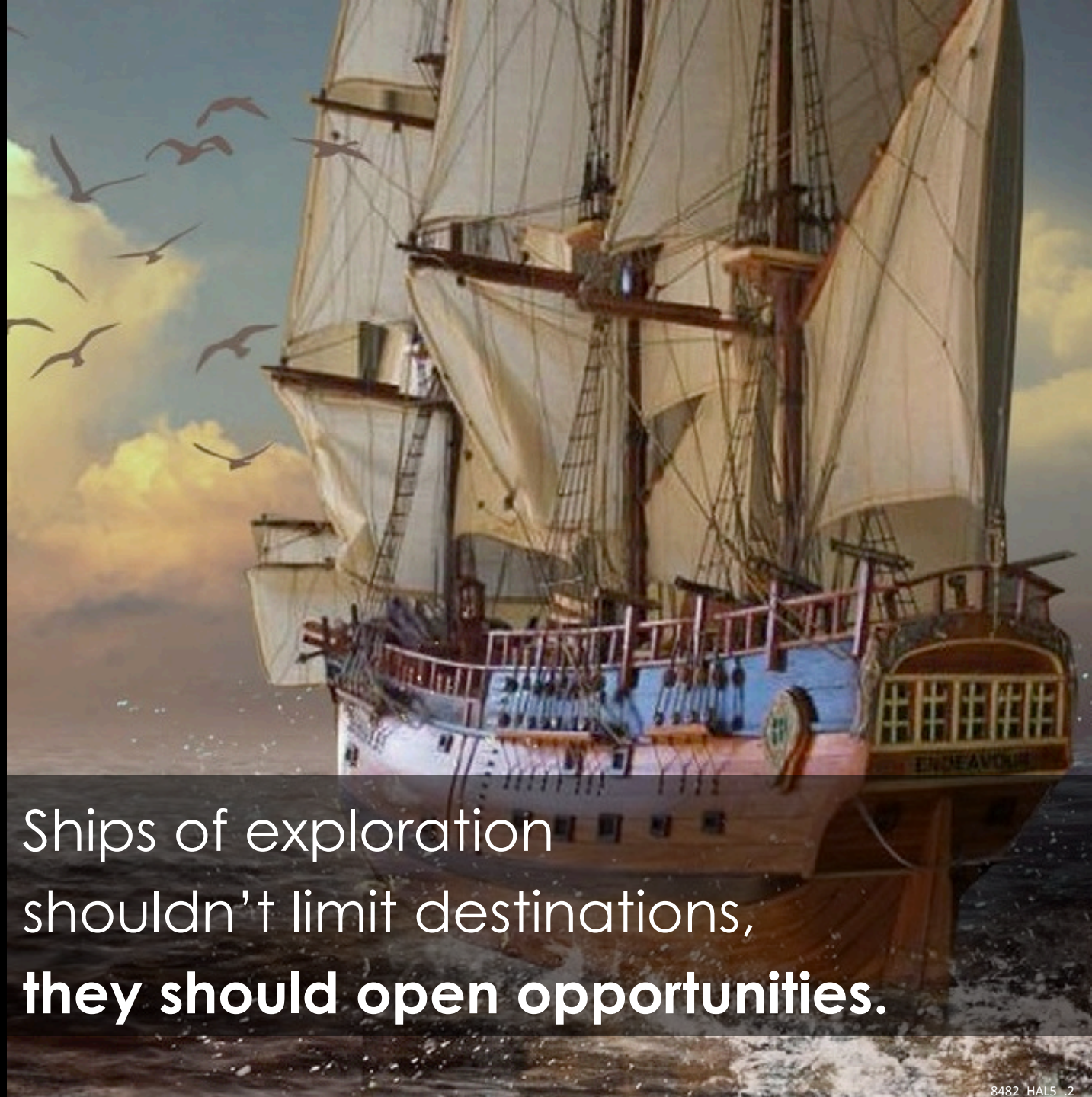
National Aeronautics and Space Administration

Space Launch System
The Next Great Ship

Todd May, Program Manager

December 5, 2013

One Ship, **Many Destinations**



Ships of exploration shouldn't limit destinations, **they should open opportunities.**

From the **Tropics**

With his ship Resolution, James Cook **was the first European to visit Hawaii.**

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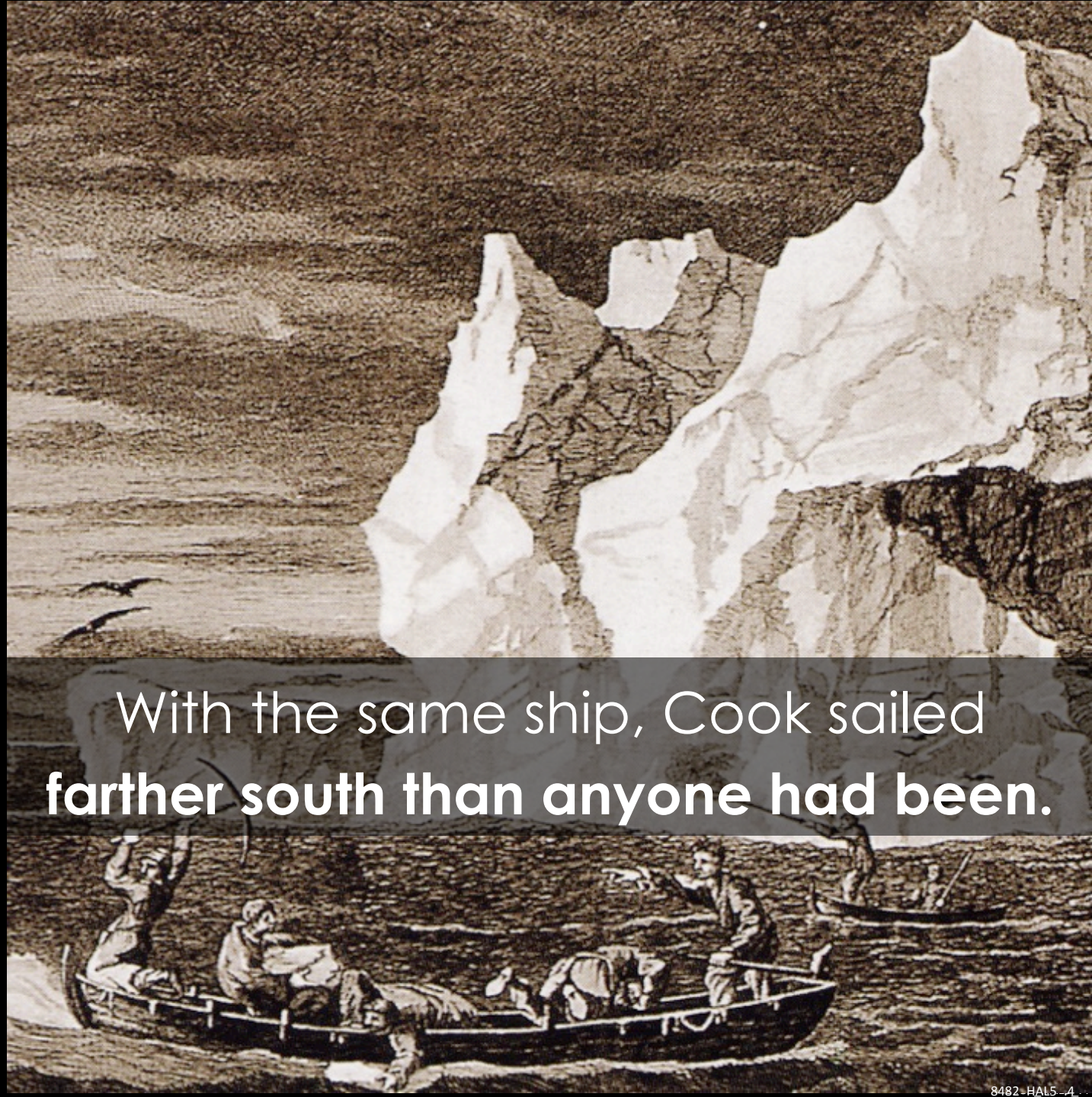
… to the **Antarctic**

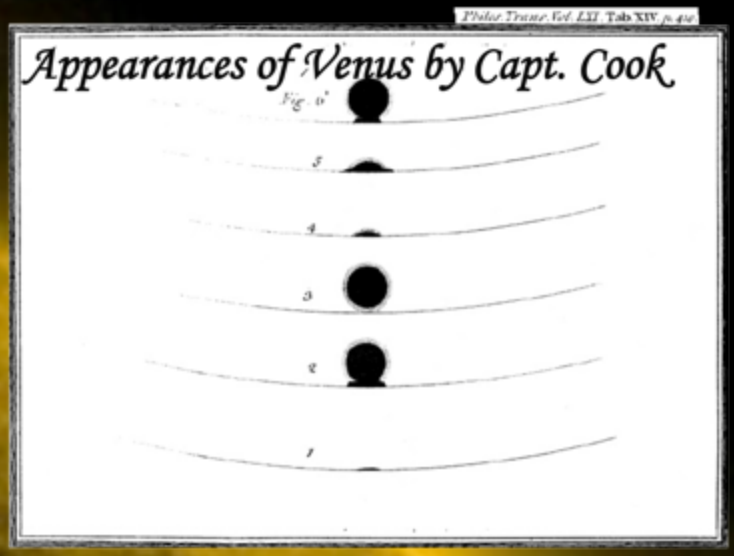


With the same ship, Cook sailed **farther south than anyone had been.**

Exploration Blazes Trails for **Commerce**

Source: arXiv:1001.2172 [physics.soc-ph) Cornell University Library

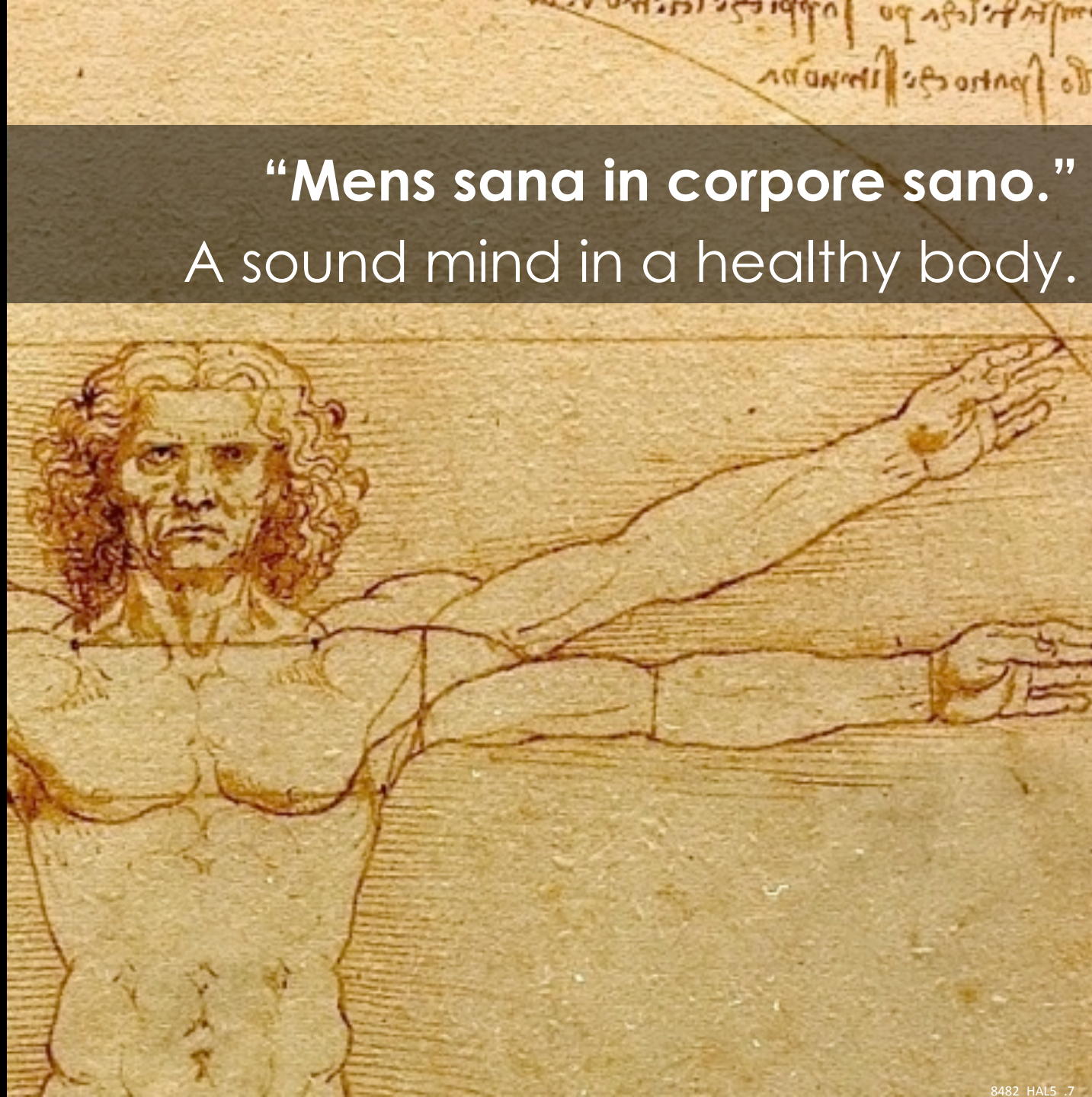
Exploration and Science: **Mutually Enabling**



Scientific results from Cook's journeys **changed astronomy and saved lives.**

Exploration Uses Both **Mental and Physical** Abilities

"Mens sana in corpore sano."
A sound mind in a healthy body.



The New **Ocean**

Space "is the new ocean, and I believe **the United States must sail on it." – JFK**

Islands in Our Ocean

For more than 40 years, humans have **gone only hundreds of miles from home**

A Deeper Purpose, **A Bolder Mission**

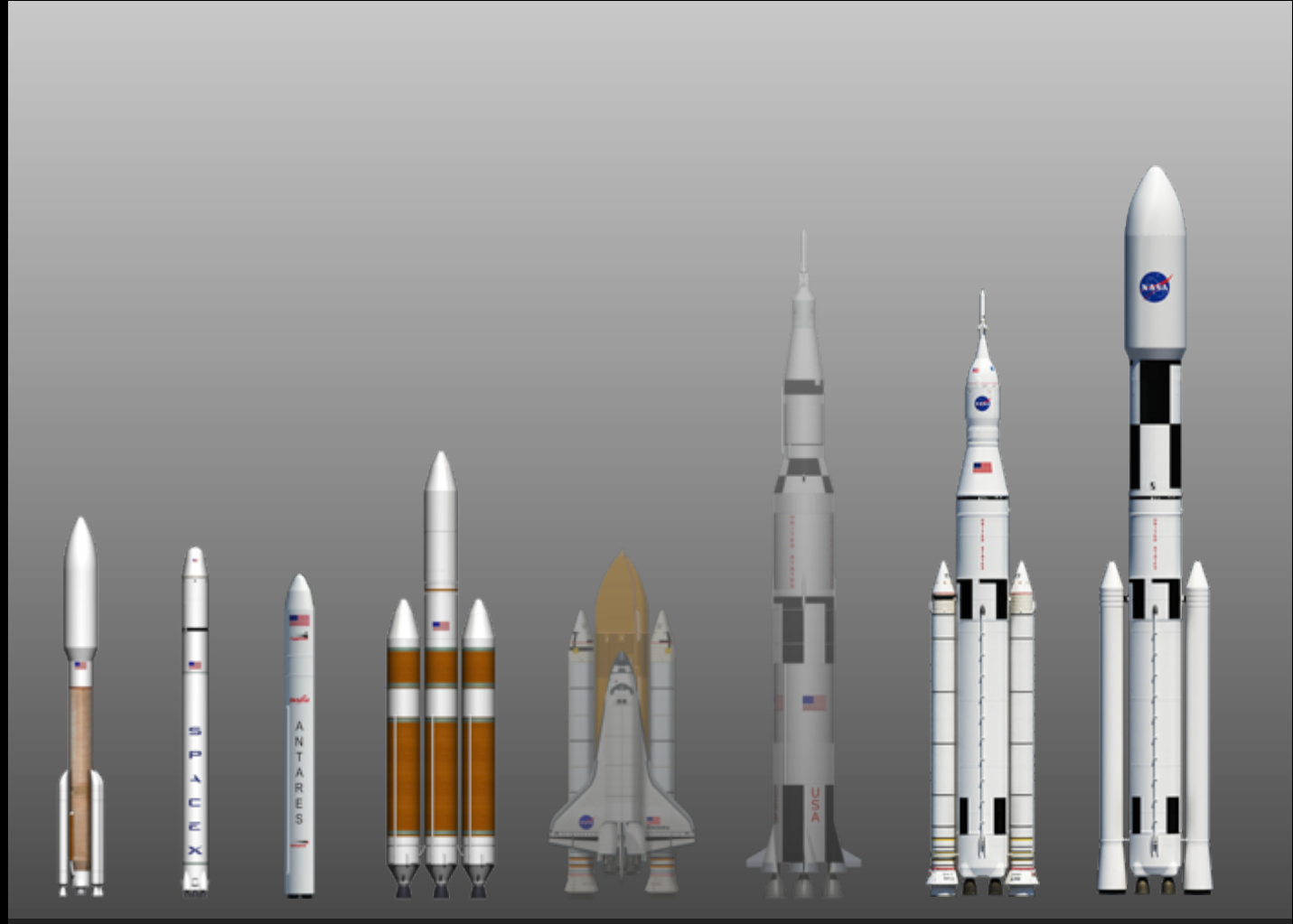
"To reach for new heights…

and reveal the unknown so that what we do and learn will benefit all humankind."

NASA's **Space Launch System**

www.nasa.gov/sls #slsinspires

Bigger Rocket = **Unrivaled Mass, Unrivaled Volume**



Enables missions

no other rocket can perform.

Proven success. **Greater power.**

Orion:
Carries astronauts into deep space

Stage Adapters:
The Orion stage adapter will be the first new SLS hardware to fly.

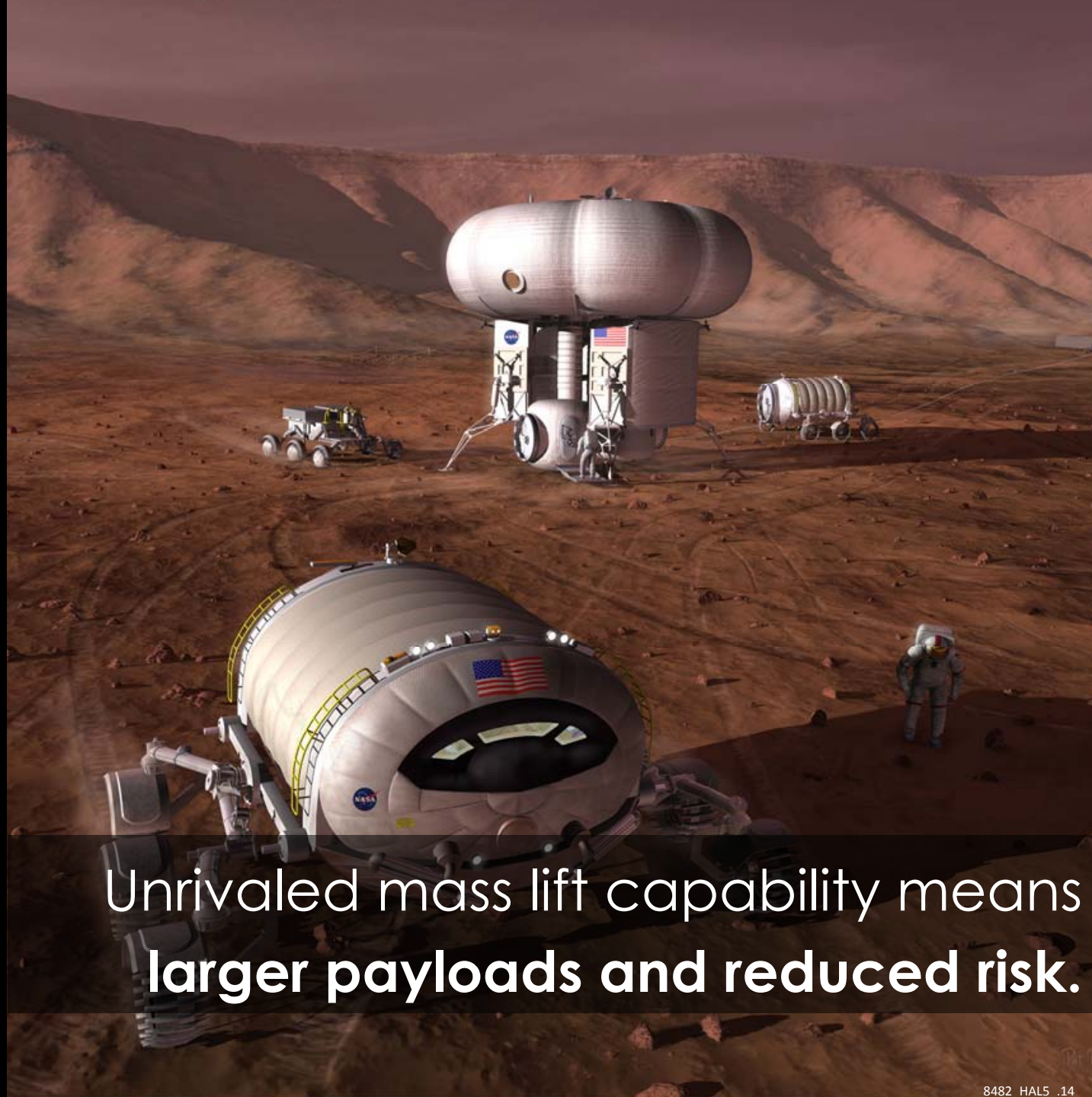
Interim Cryogenic Propulsion Stage:
Based on the Delta IV Heavy upper stage; the power to leave Earth

Core Stage:
Newly developed for SLS, the Core Stage towers more than 200 feet tall

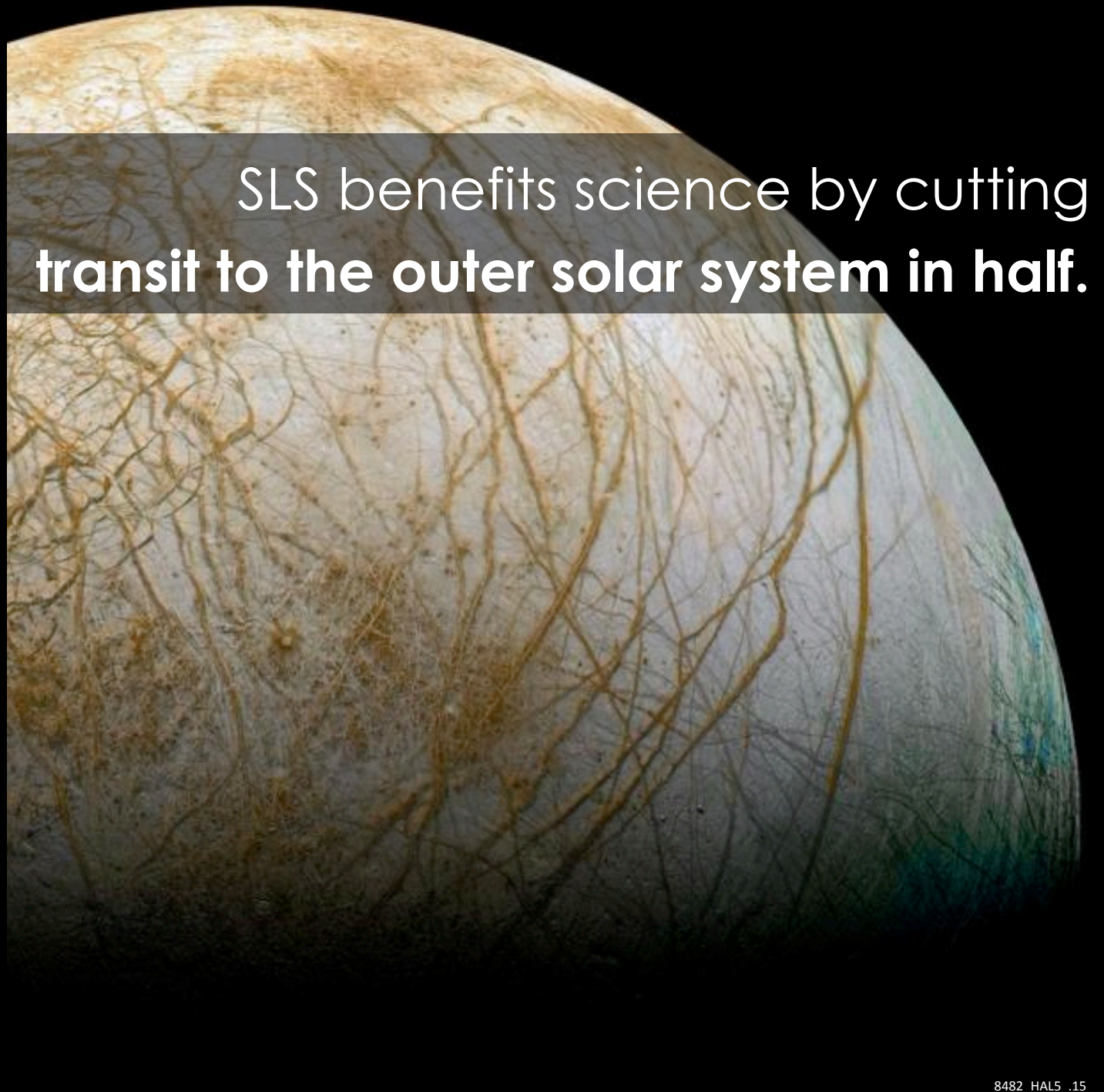
Solid Rocket Boosters:
Built on Space Shuttle hardware; more powerful for a new era of exploration

RS-25 Engines:
Space Shuttle engines for the first four flights are already in inventory

Doing the **heavy lifting** for space exploration



Unrivaled mass lift capability means **larger payloads and reduced risk.**

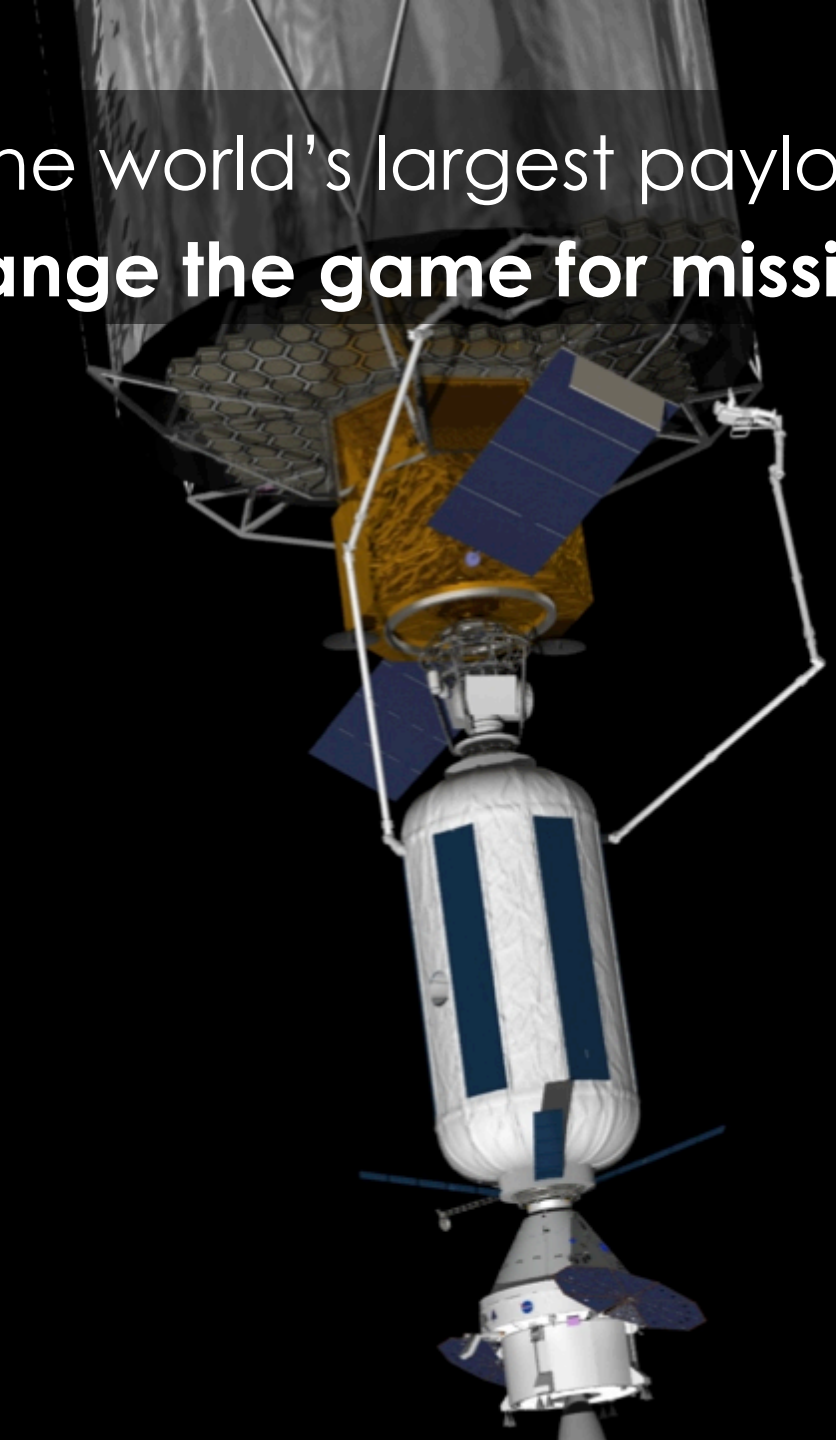


SLS benefits science by cutting **transit to the outer solar system in half.**

Greater power means **greater versatility**

The world's largest payload fairings **change the game for mission design.**

Having **more space** for payloads lets you do **more in space**



A vital resource for the space industry

Space Launch System will open new **opportunities for investment in space.**

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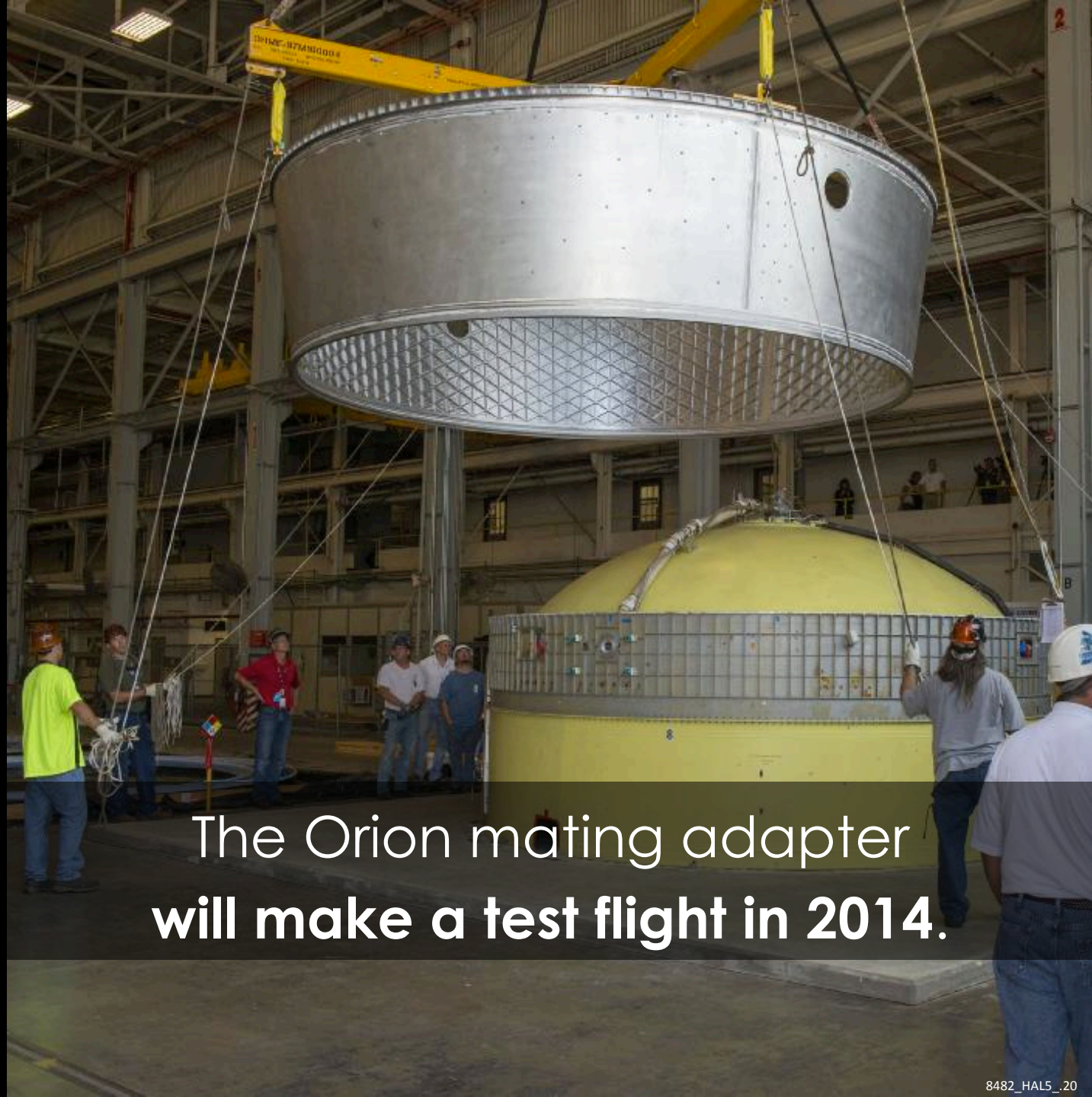
A national resource **the nation can afford**

Innovatively designed to be **affordable within a limited budget.**

Core Stage is taking shape

New tooling is installed at Michoud **and confidence welding has begun.**

Our first **payload adapter hardware** is ready to fly



The Orion mating adapter **will make a test flight in 2014.**

Testing is soon for **RS-25 engines**

Test stand upgrades being made now **will support RS-25 test firings in 2014.**

New upgrades are being tested for **Solid Rocket Boosters**

Three successful test firings demonstrated the five-segment motor.

‘Stack it. I’m ready.’
–Tony Antonelli

After an in-depth technical review,
the SLS Program is ready to build.

SLS's first launch will send Orion **beyond the moon into deep space.**

First flight in **four years**

SLS is the first step in the **journey to Mars**

Going to Mars will be difficult.
SLS provides the power that it takes.

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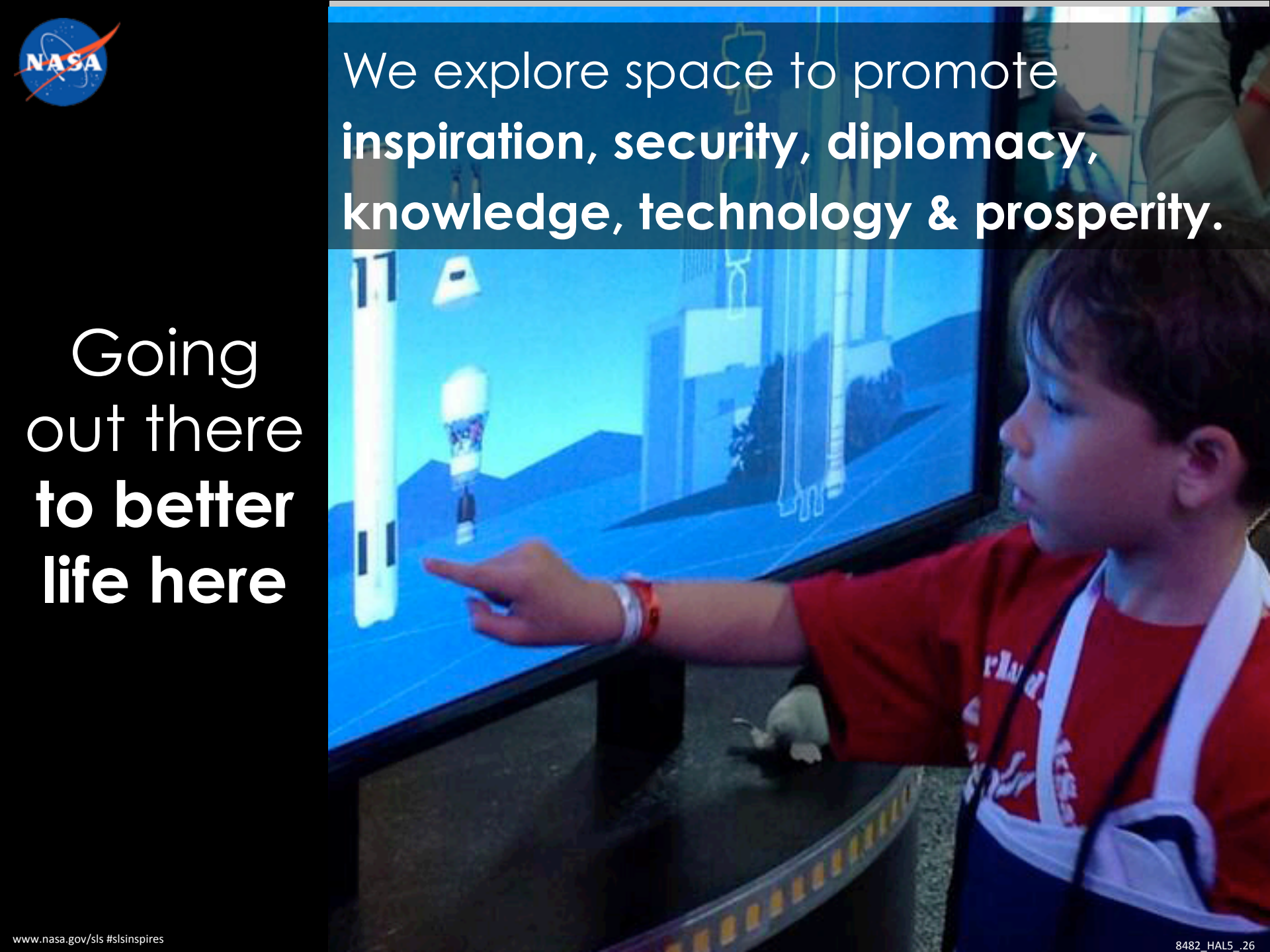
We explore space to promote
inspiration, security, diplomacy,
knowledge, technology & prosperity.
Going
out there
to better
life here
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The **biggest challenges** aren't always **technical.**
Our team is doing their part.
We need your support.

Man cannot discover
new oceans
unless he has the
courage to lose
sight of the shore.

Join us on
the journey

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